

CLAIMS

1. A method for joining a first substrate to a second substrate, said first substrate being transparent to optical radiation and including opaque metallization features thereon, a curable sealant resident between said first substrate and said second substrate, portions of said sealant partially blocked from said optical radiation by said metallization features, said method comprising the steps of:

a) directing said optical radiation in a path towards said sealant; and

b) positioning a light diffusion element in said path to cause a diffusion of said optical radiation, whereby some of said optical radiation that is diffused is incident on and is reflected onto said sealant that is shadowed by the metallization features.

2. The method as recited in claim 1, wherein said light diffusion element comprises a roughened coating on said second substrate.

3. The method as recited in claim 2 wherein said roughened coating comprises a chrome oxide/chrome layer.

4. The method as recited in claim 2, wherein said

roughened coating comprises a metallized layer upon which particles have been deposited.

5 5. The method as recited in claim 1, wherein said light diffusion element comprises a plate having a matte coating thereon and said positioning step places said plate on said first substrate.

10 6. The method as recited in claim 5, wherein a fluid coupling medium is resident between said plate and said first substrate.

15 7. The method as recited in claim 1, wherein said light diffusion element comprises a lens arrangement positioned between a source of said optical energy and said first substrate.

20 8. The method as recited in claim 1, wherein said optical radiation is in the ultraviolet range.

25 9. The method as recited in claim 1, wherein said directing step is controlled to scan said optical radiation across regions where said sealant is resident and to increase energy of said optical radiation when said optical radiation is incident on said metallization features so as to create a heating thereof to aid in curing said sealant.

10. A method for joining a first substrate to a second substrate to form a display panel, said first substrate being transparent to optical radiation and including opaque metallization features thereon, a dual-
 5 curable sealant resident between said first substrate and said second substrate, portions of said sealant partially blocked from said optical radiation by said metallization features, said dual curable sealant curable by application of heat and optical radiation, said method comprising the
 10 steps of:

a) preheating said first substrate and second substrate to a bias temperature;

15 a) directing said optical radiation in a path towards said sealant; and

b) positioning a light diffusion element in said path to cause a diffusion of said optical radiation, whereby
 20 some of said optical radiation that is diffused and some that is reflected are incident on said sealant that is shadowed by the metallization features, whereby said bias temperature and said optical radiation combine to cause a cure of said dual-cure sealant.

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11. The method as recited in claim 10, wherein said light diffusion element comprises a roughened coating on said second substrate.

12. The method as recited in claim 11 wherein said roughened coating comprises a chrome oxide/chrome layer.

5 13. The method as recited in claim 11, wherein said roughened coating comprises a metallized layer upon which particles have been deposited.

10 14. The method as recited in claim 10, wherein said light diffusion element comprises a plate having a matte coating thereon and said positioning step places said plate on said first substrate.

15 15. The method as recited in claim 14, wherein a fluid coupling medium is positioned between said plate and said first substrate.

20 16. The method as recited in claim 10, wherein said light diffusion element comprises a lens arrangement positioned between a source of said optical energy and said first substrate.

25 17. The method as recited in claim 10, wherein the bias temperature is within a range from about 50C to about 70C.

18. The method as recited in claim 10, wherein the bias temperature is about 20C to about 30C below a cure

temperature of said sealant.

19. The method as recited in claim 10, wherein said optical radiation is in the ultraviolet range.